

ABSTRACT OF THE DISCLOSURE

An apparatus for processing nonferrous metal alloy includes a first liquid metal sodium tub, a second liquid metal sodium tub, and a carrier. The first liquid metal sodium tub stores liquid metal sodium at about 450 °C, and heats the nonferrous metal alloy rapidly to put the nonferrous metal alloy in a solid solution state. The second liquid metal sodium tub stores liquid metal sodium at about 120 °C, and cools the nonferrous metal alloy rapidly to suppress growth of a Guinier-Preston (G-P) zone in the nonferrous metal alloy while in the solid solution state. The carrier, such as a guide roller, carries the nonferrous metal alloy from the first liquid metal sodium tub to the second liquid metal sodium tub. Crystal structures in the nonferrous metal alloy can be miniaturized while preserving grating defects generated in crystal structures of the nonferrous metal alloy. Also, the solid solution state itself becomes a supersaturated solid solution state in which segregation and concentration are suppressed in accordance with solute atoms in the solid solution. As the result of these effects, growth of the G-P zone, in which solute atoms in solid solution are gathered and deposited, is suppressed so as to realize ultrahigh strength for the nonferrous metal alloy.